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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,190	09/15/2003	Kenichi Ohkubo	56232.95	1414

7590 01/12/2006

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EXAMINER	
SHOSHO, CALLIE E	
ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,190	OHKUBO ET AL.	
	Examiner	Art Unit	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14 and 16-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-14 and 16-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 10/14/05. Further, it is noted that applicants' filing on 10/14/05 of English translation of foreign priority document previously filed 9/15/03 perfects the foreign priority filing date.

In light of the new grounds of rejection as set forth below, the following action is non-final.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3-6, and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (U.S. 2003/0050362) in view of either Takada et al. (U.S. 6,454,403) or Ninomiya et al. (U.S. 2003/008942).

Sakai et al. disclose aqueous dispersion of colored particles prepared by emulsifying a mixture comprising a colorant and a polymer using a reactive emulsifier and then copolymerizing the emulsified mixture with a polymerizable monomer. Sakai et al. disclose colorant, i.e. pigment, coated with water-insoluble resin such as acrylic resin, i.e. core, that is encapsulated with copolymer obtained from polymerizable unsaturated monomer and reactive emulsifier, i.e. shell. The reactive emulsifier is anionic or nonionic and includes those known under the tradenames Latemul and Eleminol JS-2 which are identical to the reactive emulsifiers utilized in the present invention. It is disclosed that the ratio of colorant to polymer is 0.43 (3/7)

to 2.3 (7/3). The colored particles possess average particle diameter of 200 nm or smaller. There is also disclosed ink comprising the colored particles. There is further disclosed image recording method wherein the ink is ejected from ink jet printer onto substrate (paragraphs 2, 11, 18-19, 21, 36, 38-40, 42, 47-49, 53-54, 58, 71, 94, and 97).

The difference between Sakai et al. and the present claimed invention is the requirement in the claims of oil-soluble dye.

Sakai et al. disclose the use of pigment but there is no disclosure of the use of oil-soluble dye.

Takada et al., which is drawn to ink jet ink comprising encapsulated colorant, disclose the use of colorant that is oil-soluble dye in order to prevent ink from adhesion or deposition onto the nozzle face of the ink jet head in order to improve the long-term ink ejection stability. Takada et al. also disclose the equivalence and interchangeability of using oil-soluble dye with using pigment (col.7, lines 55-63).

Alternatively, Ninomiya et al., which is drawn to ink jet ink, disclose using oil-soluble dye or pigment in order to solve the problems of low water-fastness and light-fastness of water-based ink comprising water-soluble dye. Further, Ninomiya et al. teach that the use of oil-soluble dye or pigment as part of colored particles produces ink with not only excellent waterfastness and lightfastness but also excellent dispersion stability and ejection stability (paragraphs 1, 5-13, and 74).

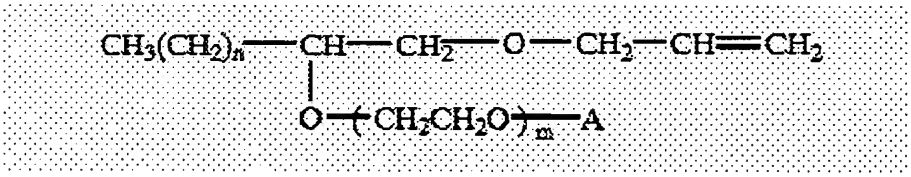
In light of the motivation for using oil-soluble dye disclosed by Takada et al. or Ninomiya et al. as described above and in light of the disclosure in each reference of the equivalence and interchangeability of using pigment, as disclosed by Sakai et al., with using oil-

soluble dye, as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use oil-soluble dye as the colorant in Sakai et al. in order to produce ink with long term ejection stability, or alternatively, excellent waterfastness, lightfastness, dispersion stability and ejection stability, and thereby arrive at the claimed invention.

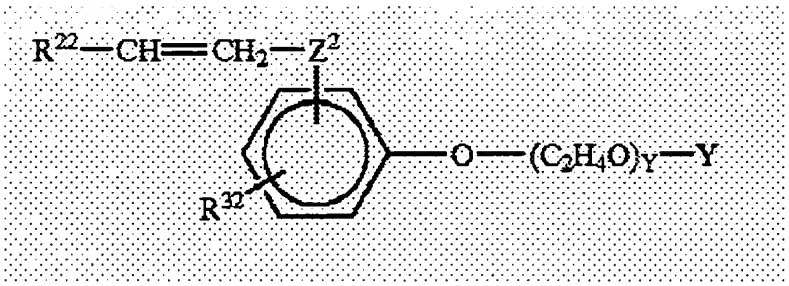
4. Claims 7-9 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. in view of either Takada et al. or Ninomiya et al. as applied to claims 1, 3-6, and 10-14 above, and further in view of Nakamura et al. (U.S. 2003/0195274).

The difference between Sakai et al. in view of either Takada et al. or Ninomiya et al. and the present claimed invention is the requirement in the present claims of specific type of reactive emulsifier.

Nakamura et al., which is drawn to ink jet ink, disclose the use of colorant encapsulated with polymer obtained from reactive emulsifier of the type:



wherein A is SO_3M where M is alkali metal or ammonium salt residue, m is 2-20, and n is 9 or 11 and which are known, for instance, under the tradename Aqualon KH-05 or KH-10 and thus, are identical to those presently claimed. Further, Nakamura et al. also disclose the use of reactive emulsifier of the type :



wherein y is 2-20, R^{32} is hydrocarbon group having 1-12 carbon atoms, and Y is hydrogen or SO_3M where M is alkali metal. The motivation for using such reactive emulsifiers is to ensure excellent dispersability of the encapsulated particle and produce ink with excellent ejection stability, image density, absorbability to paper, and color developability. Nakamura et al. also disclose the equivalence and interchangeability of the above reactive emulsifiers with reactive emulsifier known under the tradename Adeka Reasoap SE series or NE series as disclosed by Sakai et al. (paragraphs 155-165 and 169).

In light of the motivation for using specific reactive emulsifiers disclosed by Nakamura et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such reactive emulsifier in Sakai et al. in order to produce ink with excellent ejection stability, image density, absorbability to paper, and color developability, and thereby arrive at the claimed invention.

5. Claims 16-20, 24-25, and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. (U.S. 2003/0050362) in view of either Takada et al. (U.S. 6,454,403) or Ninomiya et al. (U.S. 2003/008942).

Attention is drawn to example 5 of Sakai et al. that discloses method of preparing colored particles comprising polymer and colorant wherein the method comprises the steps of dissolving polymer and pigment in solvent, adding monomer, adding reactive emulsifier and emulsifying in water, and polymerizing the monomer. It is noted that the reactive surfactant is known under the tradename Eleminol JS-2 which is identical to reactive emulsifier utilized in the present invention and which corresponds to presently claimed formula (1).

The difference between Sakai et al. and the present claimed invention is the requirement in the claims of oil-soluble dye.

Sakai et al. disclose the use of pigment but there is no disclosure of the use of oil-soluble dye.

Takada et al., which is drawn to ink jet ink comprising encapsulated colorant, disclose the use of colorant that is oil-soluble dye in order to prevent ink from adhesion or deposition onto the nozzle face of the ink jet head in order to improve the long-term ink ejection stability. Takada et al. also disclose the equivalence and interchangeability of using oil-soluble dye with using pigment (col.7, lines 55-63).

Alternatively, Ninomiya et al., which is drawn to ink jet ink, disclose using oil-soluble dye or pigment in order to solve the problems of low water-fastness and light-fastness of water-based ink comprising water-soluble dye. Further, Ninomiya et al. teach that the use of oil-soluble dye or pigment as part of colored particles produces ink with not only excellent waterfastness

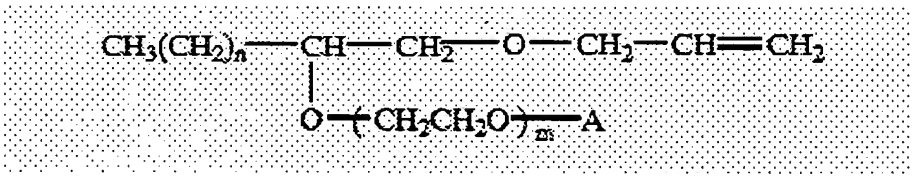
and lightfastness but also excellent dispersion stability and ejection stability (paragraphs 1, 5-13, and 74).

In light of the motivation for using oil-soluble dye disclosed by Takada et al. or Ninomiya et al. as described above and in light of the disclosure in each reference of the equivalence and interchangeability of using pigment, as disclosed by Sakai et al., with using oil-soluble dye, as presently claimed, it therefore would have been obvious to one of ordinary skill in the art to use oil-soluble dye as the colorant in Sakai et al. in order to produce ink with long term ejection stability, or alternatively, excellent waterfastness, lightfastness, dispersion stability and ejection stability, and thereby arrive at the claimed invention.

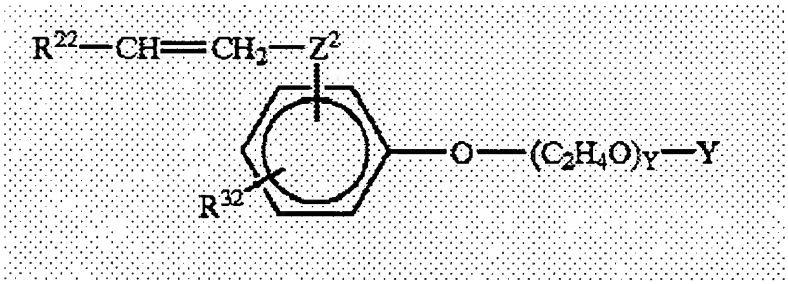
6. Claims 21-23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. in view of either Takada et al. or Ninomiya et al. as applied to claims 16-20, 24-25, and 28-29 above, and further in view of Nakamura et al. (U.S. 2003/0195274).

The difference between Sakai et al. in view of either Takada et al. or Ninomiya et al. and the present claimed invention is the requirement in the present claims of specific type of reactive emulsifier.

Nakamura et al., which is drawn to ink jet ink, disclose the use of colorant encapsulated with polymer obtained from reactive emulsifier of the type:



wherein A is SO_3M where M is alkali metal or ammonium salt residue, m is 2-20, and n is 9 or 11 and which are known, for instance, under the tradename Aqualon KH-05 or KH-10 and thus, are identical to those presently claimed. Further, Nakamura et al. also disclose the use of reactive emulsifier of the type :



wherein y is 2-20, R^{32} is hydrocarbon group having 1-12 carbon atoms, and Y is hydrogen or SO_3M where M is alkali metal. The motivation for using such reactive emulsifier is to ensure excellent dispersability of the encapsulated particle and produce ink with excellent ejection stability, image density, absorbability to paper, and color developability (paragraphs 155-165 and 169).

In light of the motivation for using specific reactive emulsifiers disclosed by Nakamura et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such reactive emulsifier in Sakai et al. in order to produce ink with excellent ejection stability, image density, absorbability to paper, and color developability, and thereby arrive at the claimed invention.

Response to Arguments

7. Applicants' arguments regarding Ninomiya et al. '613 (U.S. 2003/0199613) and Kuribayashi et al. (U.S. 2004/0009294) have been considered but they are moot in view of the discontinuation of the use of these references against the present claims.

8. Applicants' argument filed 10/14/05 have been fully considered but, with the exception of arguments relating to Ninomiya et al. '613 and Kuribayashi et al., they are not persuasive.

Specifically, applicants argue that there is no disclosure in Sakai et al. of colored particles comprising dye or oil-soluble dye as presently claimed.

It is agreed that there is no disclosure in Sakai et al. of colored particles as presently claimed comprising dye or oil-soluble dye which is why Sakai et al. is now used in combination with either Takada et al. or Ninomiya et al. '942 which each teach the equivalence and interchangeability of using colored particles comprising pigment, as disclosed by Sakai et al., with using colored particles comprising oil-soluble dye as presently claimed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
1/7/06